INSTRUCTION MANUAL

SIGNAL SOURCE 207

PORTABLE BAR/DOT GENERATOR

INSTRUCTION MANUAL

SIGNAL SOURCE 207
PORTABLE BAR/DOT GENERATOR

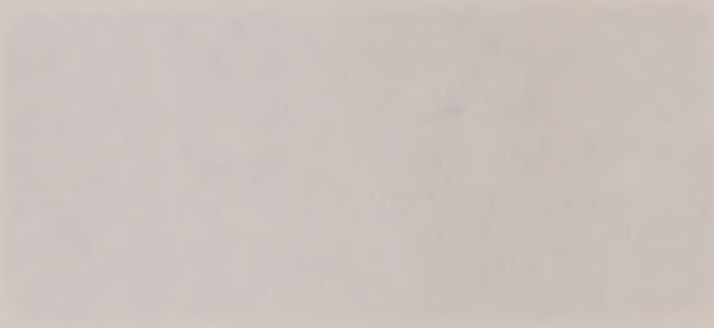
Series C

Serial No. _____

TI# 37630
1107470

VISUAL INFORMATION INSTITUTE, INC.

Box 33 / Xenia, OH 45385 / Phone (513) 376-4361



NOTICE

This manual is prepared on the premise that the user is familiar with television system terms and concepts, and particularly is acquainted with the use of electronic test instruments (such as an oscilloscope) to interpret television waveforms and to relate the content of such waveforms to the pattern which would be produced on a typical television display device. If this is not the case, background reference material is suggested as follows:

1. Glasford, Glenn M., Fundamentals of Television Engineering (New York, NY: McGraw-Hill Book Company, Inc., 1955).

2. Showalter, Leonard C., Closed-Circuit TV for Engineers and Technicians (Indianapolis, Indiana: Howard W. Sams & Co., 1969).

3. Hansen, Gerald L., Introduction to Solid-State Television Systems (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1969).

4. Fink, Donald G. (Ed.), Television Engineering Handbook (New York, NY: McGraw-Hill Book Company, Inc., 1957).

Please contact Visual Information Institute if additional information is desired on television tests and measurements or about application of this instrument. (Phone: 513-376-4361)

You must read the instruction manual completely before connecting the Signal Source Generator for operation. Observance of only a few procedures will provide greater operator convenience, and will assure most effective application of the equipment as well as provide maximum safety to the user.

CAUTION

Even low voltages commonly present in transistorized circuits are potentially dangerous. Additionally, full line voltage is present on fuse terminals, power switch terminals, and other exposed points within the interior of the unit, and are accessible when the cover of the equipment is removed. Caution should be exercised, as follows:

Remove power by unplugging the line cord when removing covers and inspecting interior of the unit.

Observe the common safety practices when servicing equipment (dry skin, insulation of the body from ground, etc.).

Never work on electrical equipment when alone.

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NOTICES

This instruction manual contains all essential information for the proper connection and use of your new Signal Source CCTV Generator. The manual contains maintenance information as well.

This device contains circuits believed to be new and novel, and therefore are considered proprietary. Duplication of circuits in Signal Source equipment is NOT AUTHORIZED; and all are warned that they are covered by appropriate patent application and infringement will be prosecuted when patents are issued.

In rare instances, there may appear in this equipment a deviation from the part type called out on the schematic and in the parts list. This is especially true in the case of semiconductor devices, diodes and transistors, where a number of types are interchangeable. It is the intent to fabricate equipment exactly as described in the instruction book. However, the right is reserved to make use of interchangeable components where such substitution will provide equal or superior performance to that specified. It is suggested that if replacements are required, the type specified in the parts list be procured.

You are urged to read the instruction manual completely before connecting the Signal Source Generator for operation. Observance of only a few procedures will provide greater operator convenience, and will assure most effective application of the equipment as well as provide maximum safety to the user.

CAUTION

Even low voltages commonly present in transistorized circuits are potentially dangerous. Additionally, full line voltage is present on fuse terminals and other exposed points within the interior of the unit, and are accessible when the cover of the equipment is removed. Extreme caution should be exercised, as follows:

a. Remove power by unplugging the line cord when removing covers and inspecting interior of the unit.

b. Observe the common safety practices when servicing equipment (dry skin, insulation of the body from ground, etc.).

c. Never work on electrical equipment when alone.

APPLICATIONS

Television test patterns generated within the Signal Source Generators are employed primarily in the alignment and performance analysis of closed-circuit and studio television equipment. The Bar and Dot patterns are particularly useful in adjustment of geometric proportion in the display as developed on the monitor through measurement of element spacing on the display surface directly. Camera alignment is performed generally in conjunction with test charts developed by the Electronic Industries Association (EIA), Washington, D.C. Other patterns, such as Window, Gray Scale, etc., are used for critical analysis of system gain, dynamic range, stability, etc. Further information regarding television tests and measurements is available through Visual Information Institute, Inc.

Signal Source CCTV Generators are designed to be used with any closed-circuit television system (those which do not place the video signal upon an r-f carrier). Application is equally successful with interlaced, EIA-Sync, or random interlaced white-positive video systems. They are also adaptable automatically to systems of any scanning rate, including American 525, 675, 1023 or 1029-line rates as well as European 625-line, 50 cycle and other systems.

The mixer type of pattern output will operate properly from a composite (with sync) signal. The video signal inserted into the INPUT terminal of the unit must have at least 0.2v. sync. Operation is optimum with either 1.4v. signals (1.0v. video, 0.4v. sync) or 1.0v. signals (0.786v. video, 0.214v. sync). It is designed for an input signal with NEGATIVE sync and blanking (white positive video).

TECHNICAL SPECIFICATIONS

INPUT SIGNAL REQUIREMENT	Type . . .	Composite video, white positive polarity (sync negative).
	Impedance .	75 ohm, single-ended.
	Level . . .	Nominal 1.0v. composite video (0.786v. video + 0.214v. sync).
		- or -
		Nominal 1.4v. composite video (1.0v. video plus 0.4v. sync).
		Minimum 0.2v. sync required, video portion variable from zero.
OUTPUT SIGNAL CHARACTERISTICS	Type . . .	Composite video, white positive polarity (sync negative).
		Output is identical to input, plus superimposed Bar or Dot pattern.
	Impedance .	Source terminated 75 ohm, single-ended.
	Level . . .	Output video identical to input, plus amount of pattern superimposed, as selected at level control, to a maximum of 0.5v.
SCAN RATE	Any.	
POWER INPUT . . .	120v. a.c., single phase, 50/60 cps, 7 watts.	
INTERNAL FUSE . .	1/4 amp. slo-blo.	
SIZE	9½" wide x 3½" high x 7" deep. (excluding carrying handle)	
WEIGHT	Net 5 lbs; shipping weight 8 lbs.	
OPERATING TEMP. RANGE . . .	0° to 50°C.	

INSTALLATION

The Signal Source 207 is designed with a small, portable enclosure more convenient for field or bench use. The instrument is ready for operation as unpacked.

CONNECTIONS

POWER is applied to the Bar/Dot Generator simply by inserting the line cord into a 120v. 50/60 cycle a.c. receptacle and turning the power switch to the ON position. The red pilot light indicates that power is applied and the unit is ready for operation. If the power is applied and the pilot light does not glow, this indicates that the a.c. line fuse may be blown. If it is known that a.c. power is present, check the fuse inside the unit.

VIDEO SIGNAL from a CCTV camera or other source is connected to the VIDEO IN connector. The Generator will automatically derive sync from this input, and will superimpose the Bar or Dot pattern, as selected and at the level adjusted, onto the video as it appears at the VIDEO OUT jack. From this connector cable is routed to the display device (monitor or projector) in use.

CONTROLS AND ADJUSTMENTS

FRONT PANEL

H WIDTH . . . Adjusts the width between elements in the horizontal dimension of the television raster, selecting the number of H elements which will be displayed. Nominal setting of this control provides 17 Bars or Dots in one scanning line length.

V WIDTH . . . Determines the width between elements in the vertical dimension of the television raster, and therefore controls the number of elements which will be displayed.

Nominal setting of this control provides 14 Bars or Dots in the height of the television raster.

H SPACING . . Controls the position of the Bar or Dot pattern on the television raster, a control particularly helpful in matching the pattern of the EIA Linearity Ball Chart used for setup of camera system linearity.

V SPACING . . Permits adjustment of position of the pattern in the vertical dimension of the television raster, permitting spacing of the pattern to closely match the scene or test chart normally used for system setup.

LEVEL . . . . Controls the amplitude of pattern which is mixed into the Video signal.

FUNCTION SELECTOR . . Selector switch which permits the operator to choose either the Bar, Dot, H Bar or V Bar pattern to be developed in the output signal.

ON-OFF . . . Main power switch to control application of 120v. a.c. to the unit.

INTERNAL - Remove top cover for access to items discussed below.

COVER REMOVAL . . . Remove two screws at each side. Slide the integral top cover, handle and bezel assembly up to remove from the generator. For installation, reverse above procedure.

FUSE REPLACEMENT . The fuse is located on the right side of the unit, immediately in front of the power transformer. First establish that power is removed from the generator. Pull the fuse from the clips, and inspect it visually for apparent rupture. If there is no visible damage to the fuse element, reinsert it and check for tight fit of the fuse into the holder. If the pilot light remains out when power is appiled, insert a new fuse and check for proper operation.

CAUTION - Clips of the fuse holder carry full supply voltage. Establish positively that power is removed before attempting to remove fuse.

CALIBRATION AND MAINTENANCE

Signal Source Generators operate automatically, developing an analog television signal through digital techniques. Therefore, no calibration or routing maintenance is required.

CIRCUIT DESCRIPTION

The Signal Source 207 develops precise Bar or Dot patterns, as selected, which are mixed into the input video signal. Thus, a precise grid pattern is superimposed upon the display of this video signal to aid in exact alignment of display proportions on both the television monitor and camera. The adjustment is performed through observation and measurement of the superimposed pattern; calibration is performed in conjunction with the Linearity Chart published by Electronic Industries Association, Washington, D.C. Further information on alignment of television systems is available from Visual Information Institute, Inc.

The Bar/Dot Generator automatically develops synchronizing pulses from the sync portion of the input composite video signal to control development of Bar and Dot test patterns.

Stripped sync, as processed in the VIDEO board, is routed to the SYNC SEPARATOR board. The function of this module is to separate vertical and horizontal components of the Sync signal and process them as appropriate for use in pattern development. The horizontal pulses are shaped by a bistable multivibrator. The stream of successive horizontal pulses are sampled, and the vertical circuit remains inactive until absence of a horizontal pulse is noted. Upon such condition, a vertical interval is generated by a monostable multivibrator of time duration sufficient to delete equalizing pulses, serrations, etc., that may be present in the vertical blanking time period. This monostable pulse is related to the horizontal timing by a subsequent bistable multivibrator to eliminate the possibility of jitter or flicker that may be present in unrelated V and H timing pulses.

Horizontal elements in the pattern are developed in the H BAR board. This board contains an adjustable monostable multivibrator which determines the width between lines in the vertical dimension of the raster. At the end of the monostable period, a gating condition exists which permits triggering of a bistable multivibrator for one horizontal line period. At the end of this line the monostable operation is again initiated, prohibiting pattern generation for the duration of the monostable period. During the vertical blanking interval the monostable circuit is clamped to a controlled level which determines spacing (phase) of the pattern on the raster. Therefore, operation is locked positively to the vertical and horizontal pattern elements.

The V BAR board controls development of vertical elements in the test patterns. This board contains an astable multivibrator which runs freely during the active line time. Each cycle develops a trigger for a monostable multivibrator which develops the precise, sharp pulse required to produce a fine line or dot at

all scanning rates. During the horizontal and vertical blanking intervals the astable multivibrator is clamped to a controlled voltage which establishes the spacing (phase) position of the pattern in the horizontal dimension of the raster. The board also contains auxiliary logic and mixing circuitry to form the desired combinations of patterns.

The VIDEO board, located behind the front panel, performs three vital functions. The input video signal is routed from the input terminating resistor to a sync stripper amplifier which removes the video portion of the signal and amplifies the sync portion for proper introduction to the SYNC SEPARATOR board. The input video is also routed to a wide band unity gain amplifier between the input and output terminals of the unit. Also, the pattern form the V BAR board is routed to an amplitude control circuit and then introduced into the output video signal.

All of the operations described above are performed through advanced, transistorized digital circuitry. The power supplies are closely regulated to insure dependable, stable operations over wide variations in ambient conditions.

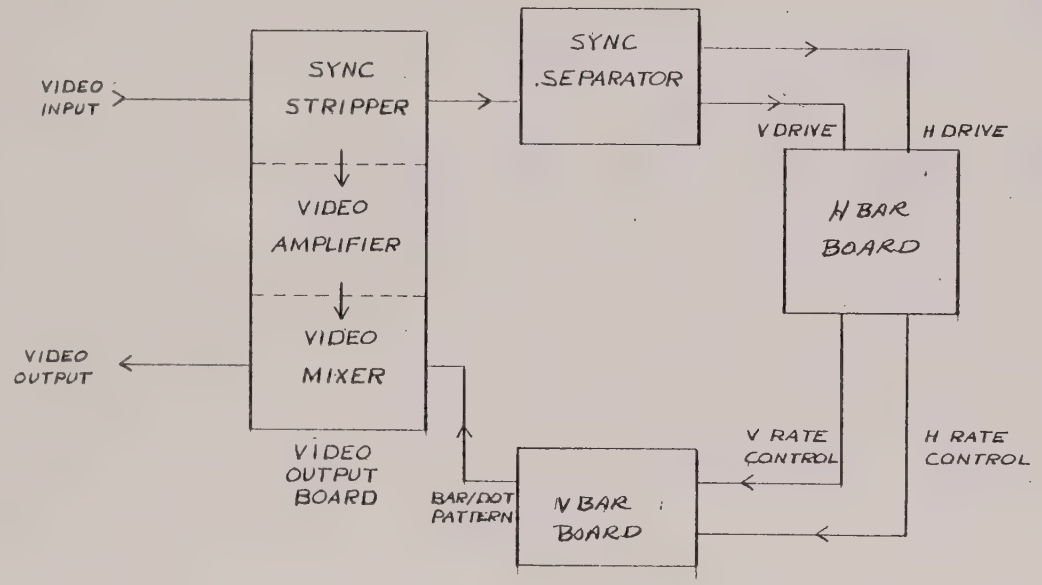
The instrument signal processing is conducted in the sequence shown on the accompanying Block Diagram. Complete, detailed descriptive drawings of individual circuit boards are included in the following pages.

SIGNAL SOURCE 207

Portable CCTV Bar/Dot Generator

Schematic and Layout Drawing Index

No.	Description
S-0118	Function Diagram - Signal Source 207
PL-1010	Electrical Parts List Cover Sheet
S-0111	Sync Separator
S-0119	Sync Separator
L-1030	Sync Separator
S-0170	V Bar
L-1040	V Bar
S-0171	H Bar
L-1039	H Bar
S-0113	Video Output
L-1031	Video Output
S-0106	Power
L-1032	Power
S-0114	Control Panel - Signal Source 207



DWN BY T OSBORNE CHK BY JH DRAWN 11/5/66	VISUAL INFORMATION INSTITUTE INC. [BLOCK DIAGRAM SIGNAL SOURCE 207	S-0118

PARTS LIST

Electrical Parts List Cover Sheet

RESISTORS . . . Unless otherwise noted, 1/2w. 10% IRC-GBT 1/2 or equivalent.

POTENTIOMETERS . (Board Mounted) Bourns E-Z Trim Type 3067-S. Value as noted.

CAPACITORS . . . a. 1000 pf and below - Dipped Mica, CDE Type CD-15, ARCO Type DM-15-. Value as noted, ±5%.

b. .001 uf to 0.1 uf - Wrapped Mylar, CDE Type WMF, 100v. ± 10%.

c. 0.1 uf to 5 uf - Solid Tantalum, Kemet Series C - Polarized, ± 10%, 15v. or higher voltage rating.

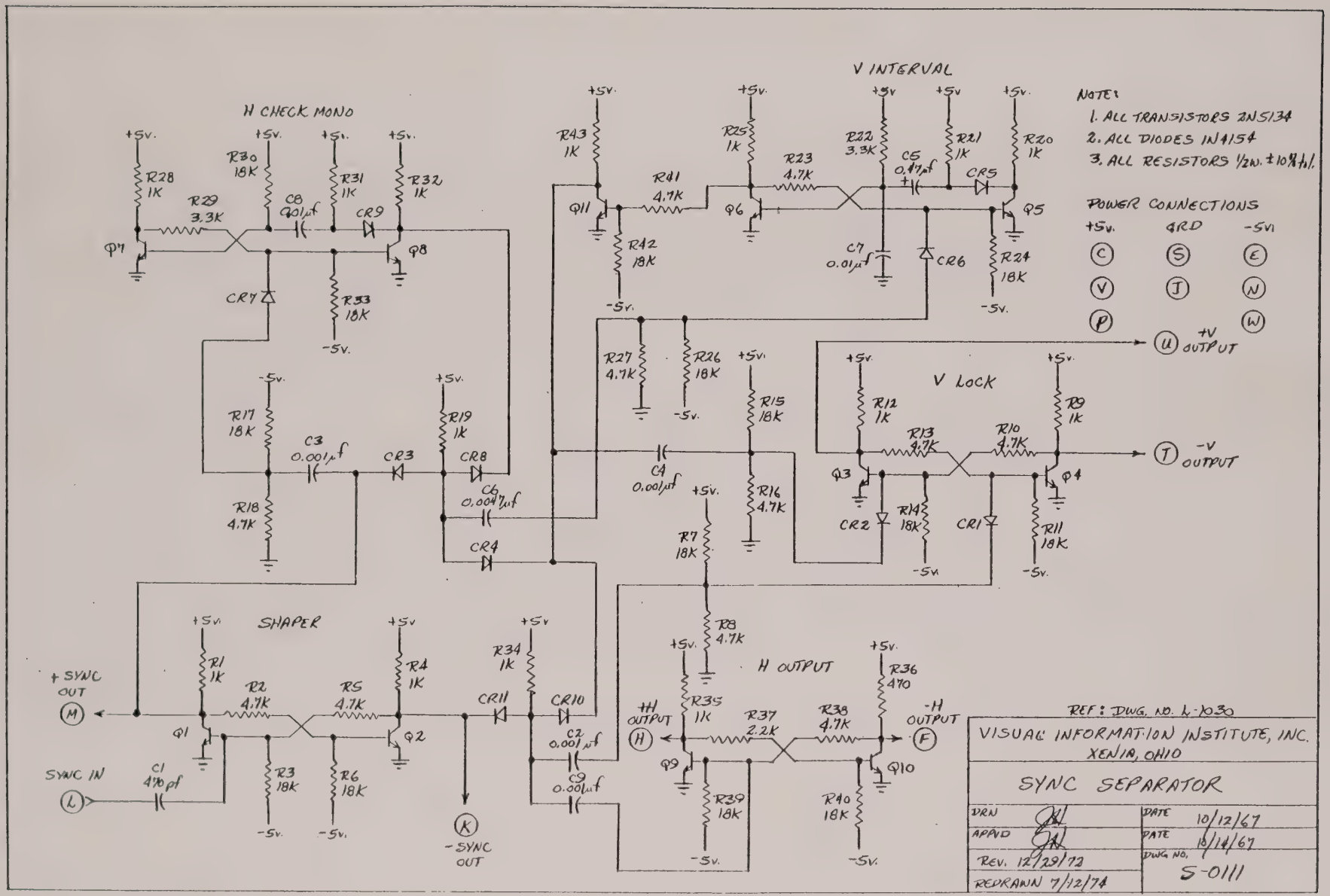
d. 5 uf to 100 uf - subminiature electrolytic, Sprague TE (30D) -10% +150%. Value and rating as noted.

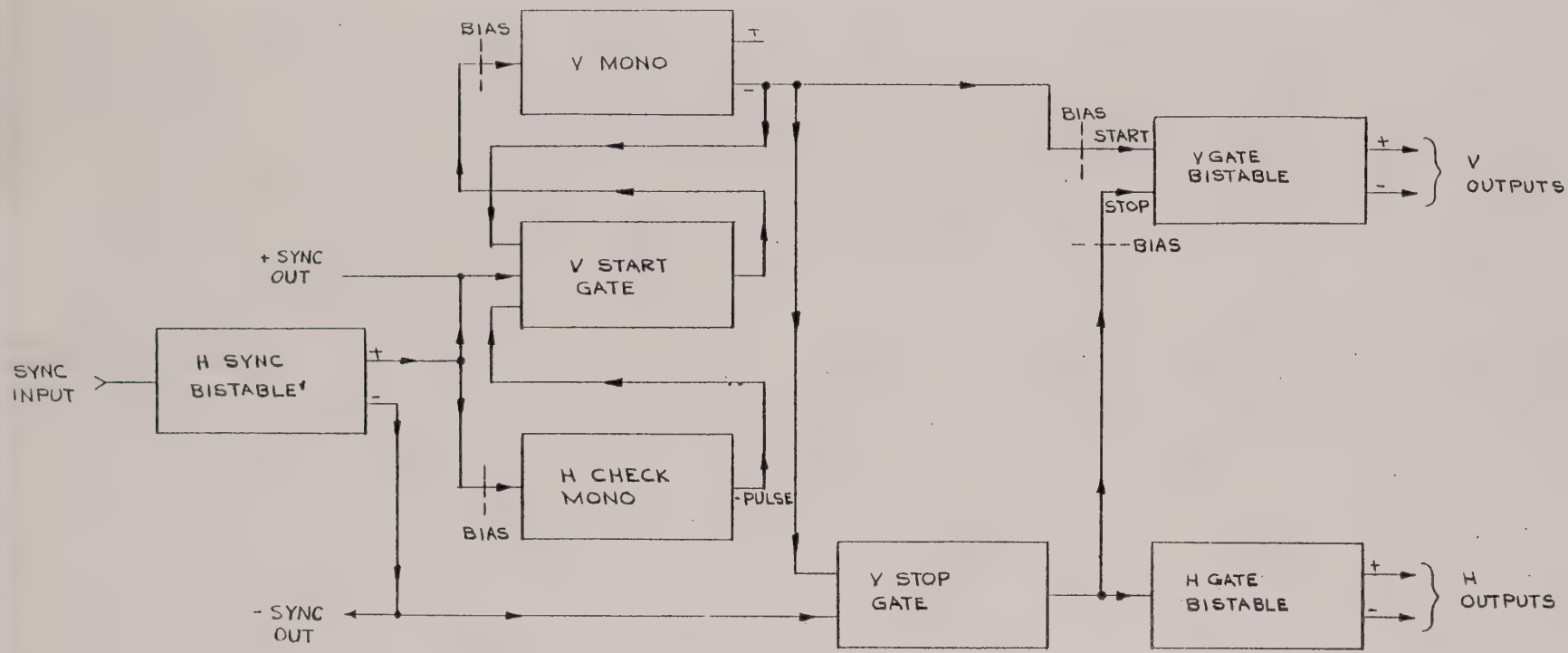
e. Above 100 uf - Electrolytic, Polarized, CDE Type BR, "Blue Beaver".

SEMICONDUCTORS . Per JEDEC Number 1N--, 2N--, etc.

CIRCUIT BOARDS . Vector Type 838A.

BOARD PINS . . . USECO No. 2510B, Keystone No. 1575-2.


H CHECK MONO
V INTERVAL
V LOCK
SHAPER
H OUTPUT
NOTE:
1. ALL TRANSISTORS 2N5134
2. ALL DIODES IN4154
3. ALL RESISTORS 1/2W. ±10% tol.
POWER CONNECTIONS
+5v. GRD -5v.
+V OUTPUT
-V OUTPUT
+ SYNC OUT
SYNC IN
- SYNC OUT
+H OUTPUT
-H OUTPUT
REF: DWG. NO. L-1030
VISUAL INFORMATION INSTITUTE, INC.
XENIA, OHIO
SYNC SEPARATOR
DRN
APP'D
REV. 12/29/72
REDRAWN 7/12/74
DATE 10/12/67
DATE 10/14/67
DWG NO. S-0111



DWN BY M.S.	VISUAL INFORMATION INSTITUTE INC.	
CHK BY J.H.		S-0119
10/12/68	SYNC SEPARATOR BLOCK DIAGRAM	

DWG. NO. L-1030

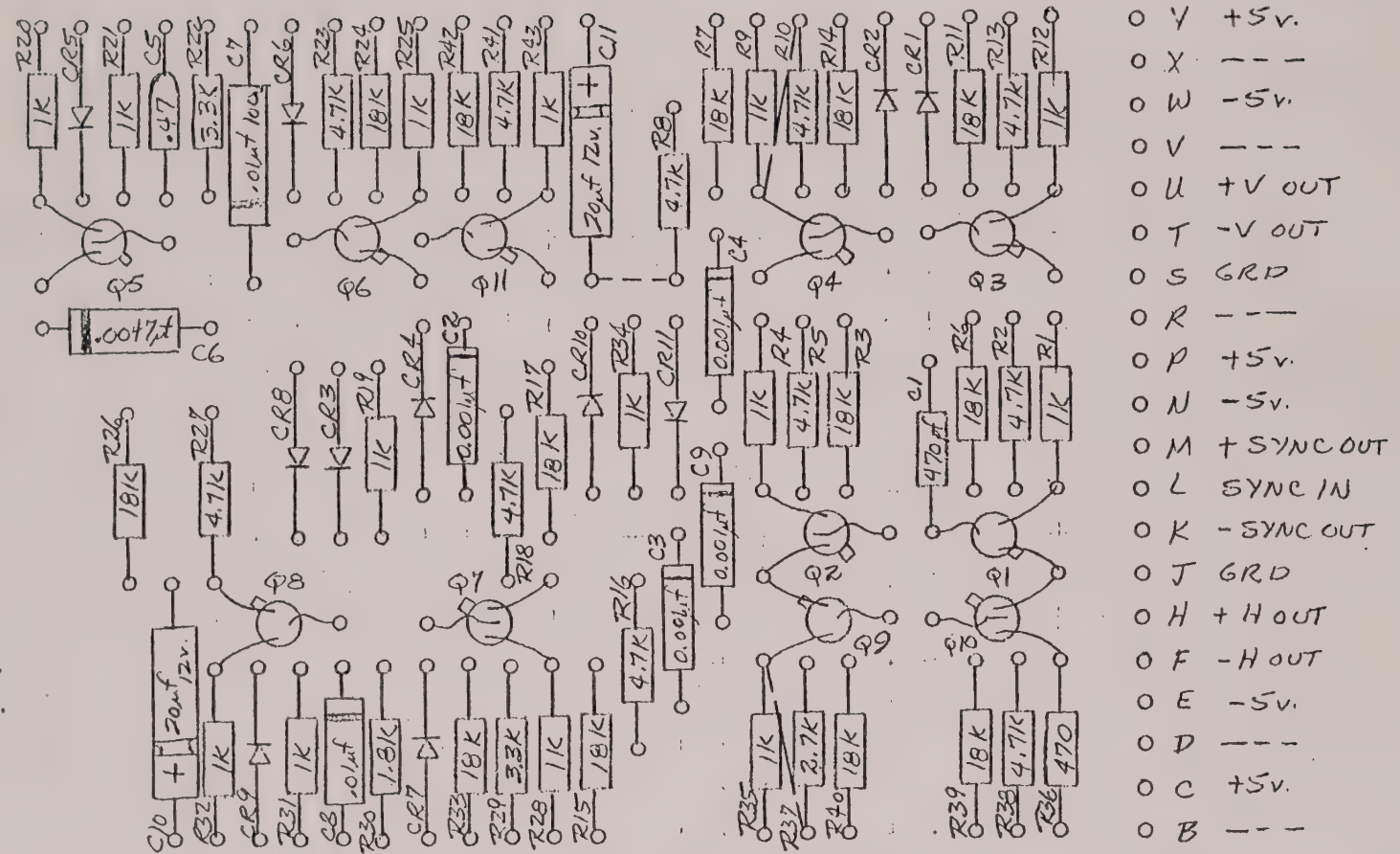
REF: SCHEMATIC S-0111

SYNC SEPARATOR

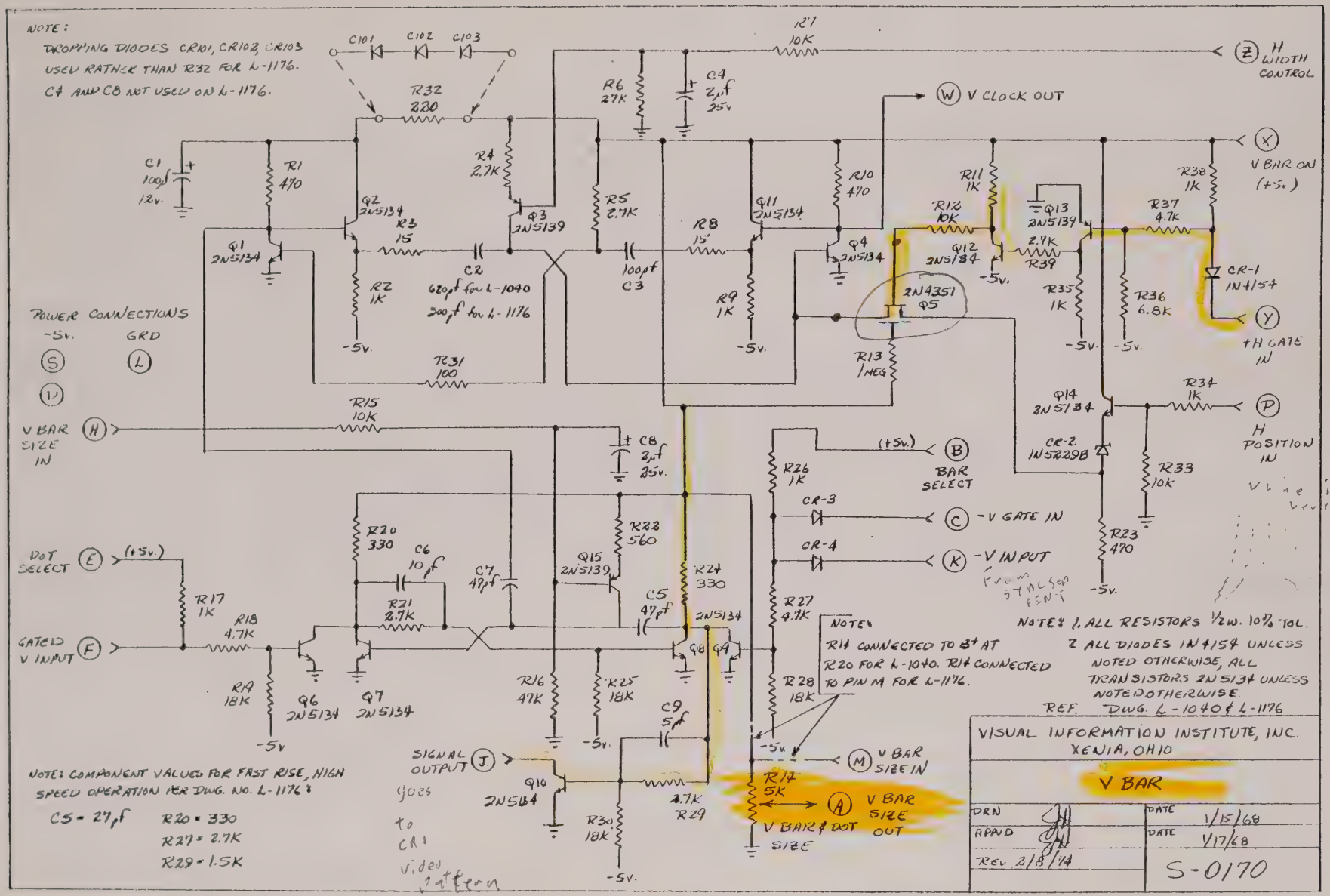
12/29/72

MATERIAL LIST

QTY	DESCR.
11	2N5134
11	IN4154
1	470
14	1K
1	2.7K
2	3.3K
1	1.8K
11	4.7K
13	18K
1	470 pf
3	20 µf, 12v.
1	0.47 µf, 35v.
1	0.0047 µf, 100v.
4	0.001 µf, 100v.
2	0.01 µf, 100v.
147	TERMINALS



---- UNINSULATED WIRE #22 SOLID (3 PLACES)


NOTE:
DROPPING DIODES CR101, CR102, CR103 USED RATHER THAN R32 FOR L-1176.
C4 AND C8 NOT USED ON L-1176.
C101
C102
C103
R32 220
R1 470
C1 100μf 12v.
Q1 2N5134
Q2 2N5134
R2 1K
R3 15
R4 2.7K
Q3 2N5139
C2 620pf for L-1040 300pf for L-1176
R5 2.7K
100pf C3
R6 27K
C4 2μf 35v
R7 10K
Z H WIDTH CONTROL
W V CLOCK OUT
X V BAR ON (+5v.)
R8 15
R9 1K
Q11 2N5134
Q4 2N5134
R10 470
R11 1K
R12 10K
Q12 2N5134
Q13 2N5139
2.7K R39
R37 4.7K
R38 1K
CR-1 1N4154
Y +H GATE IN
R35 1K
R36 6.8K
2N4351 Q5
R13 1MEG
-5v.
R31 100
POWER CONNECTIONS
-5v. S
GRD L
U
V BAR SIZE IN H
R15 10K
C8 2μf 25v.
Q14 2N5134
R34 1K
P H POSITION IN
CR-2 IN5229B
R33 10K
(+5v.) B BAR SELECT
R26 1K
CR-3
C -V GATE IN
CR-4
K -V INPUT
From SYNC SEP PINT
R23 470
R27 4.7K
R28 18K
R20 330
C6 10pf
C7 47pf
R22 560
Q15 2N5139
R24 330
C5 47pf
2N5134
Q8 Q9
R21 2.7K
DOT SELECT E
(+5v.)
R17 1K
R18 4.7K
GATED V INPUT F
R19 18K
Q6 2N5134
Q7 2N5134
R16 47K
R25 18K
C9 5pf
SIGNAL OUTPUT J
Q10 2N5134
R30 18K
2.7K R29
M V BAR SIZE IN
R14 5K
A V BAR DOT SIZE OUT
goes to CRT video pattern
NOTE: R14 CONNECTED TO B+ AT R20 FOR L-1040. R14 CONNECTED TO PIN M FOR L-1176.
NOTE: 1. ALL RESISTORS 1/2w. 10% TOL.
2. ALL DIODES IN4154 UNLESS NOTED OTHERWISE, ALL TRANSISTORS 2N5134 UNLESS NOTED OTHERWISE.
REF. DWG. L-1040 & L-1176
NOTE: COMPONENT VALUES FOR FAST RISE, HIGH SPEED OPERATION PER DWG. NO. L-1176 &
C5 - 27pf
R20 - 330
R27 - 2.7K
R29 - 1.5K
VISUAL INFORMATION INSTITUTE, INC.
XENIA, OHIO
V BAR
DRN
APPD
REV 2/8/14
DATE 1/15/68
DATE 1/17/68
S-0170

V BAR BOARD

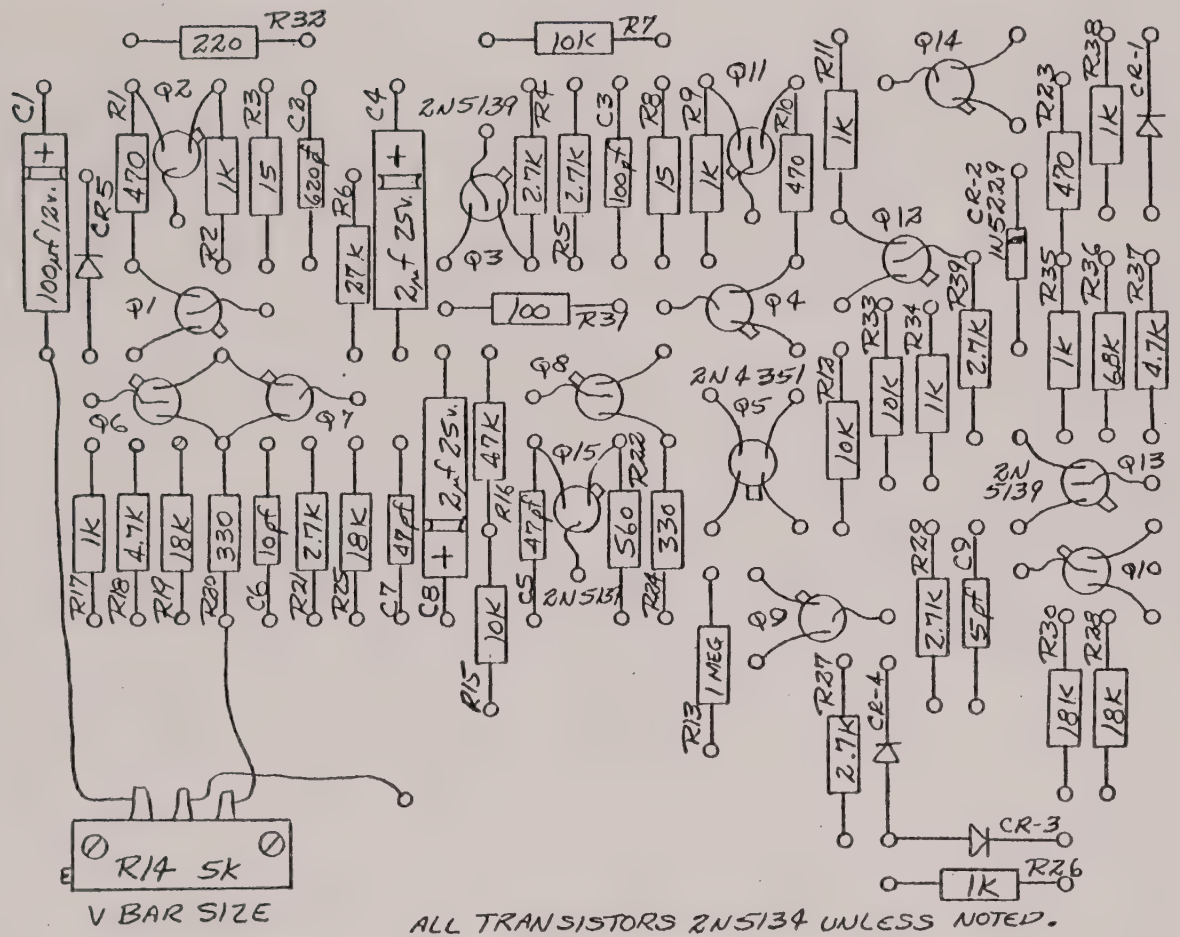
2/8/74

DWG. NO. L-1040

REF: SCHEMATIC NO. S-0170

MATERIAL LIST

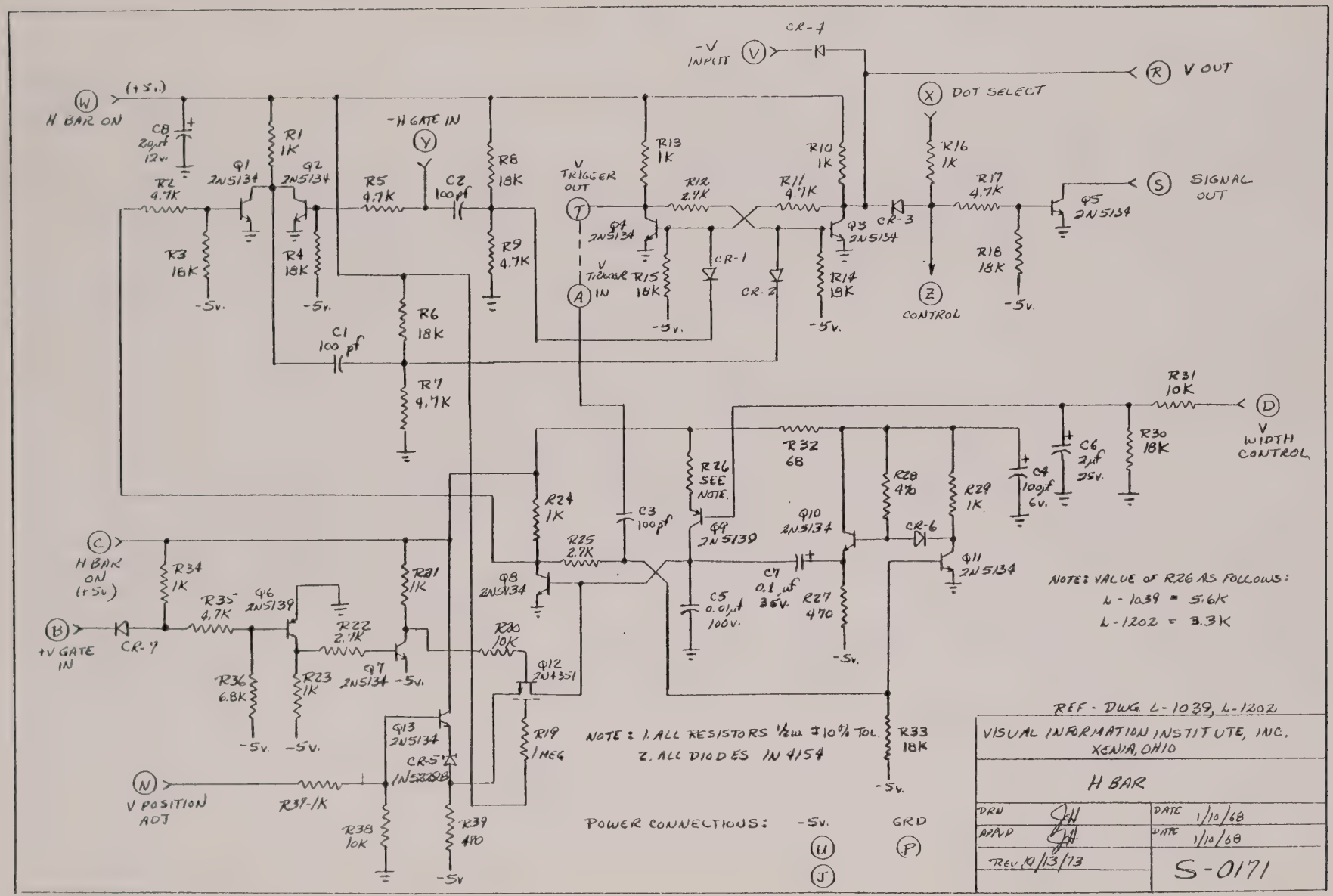
QTY	DESCR
1	IN5229B
4	IN4154
11	2N5134
3	2N5139
1	2N4351
2	15
1	100
1	220
2	330
1	560
3	470
6	2.7K
2	4.7K
4	10K
4	18K
1	27K
8	1K
1	1 MEG
2	2μf 25v.
1	620 pf
1	100pf
1	10pf
2	47pf
1	5pf
1	100μf 12v.



1 - 47K

1 - 6.8K

134-TERMINALS

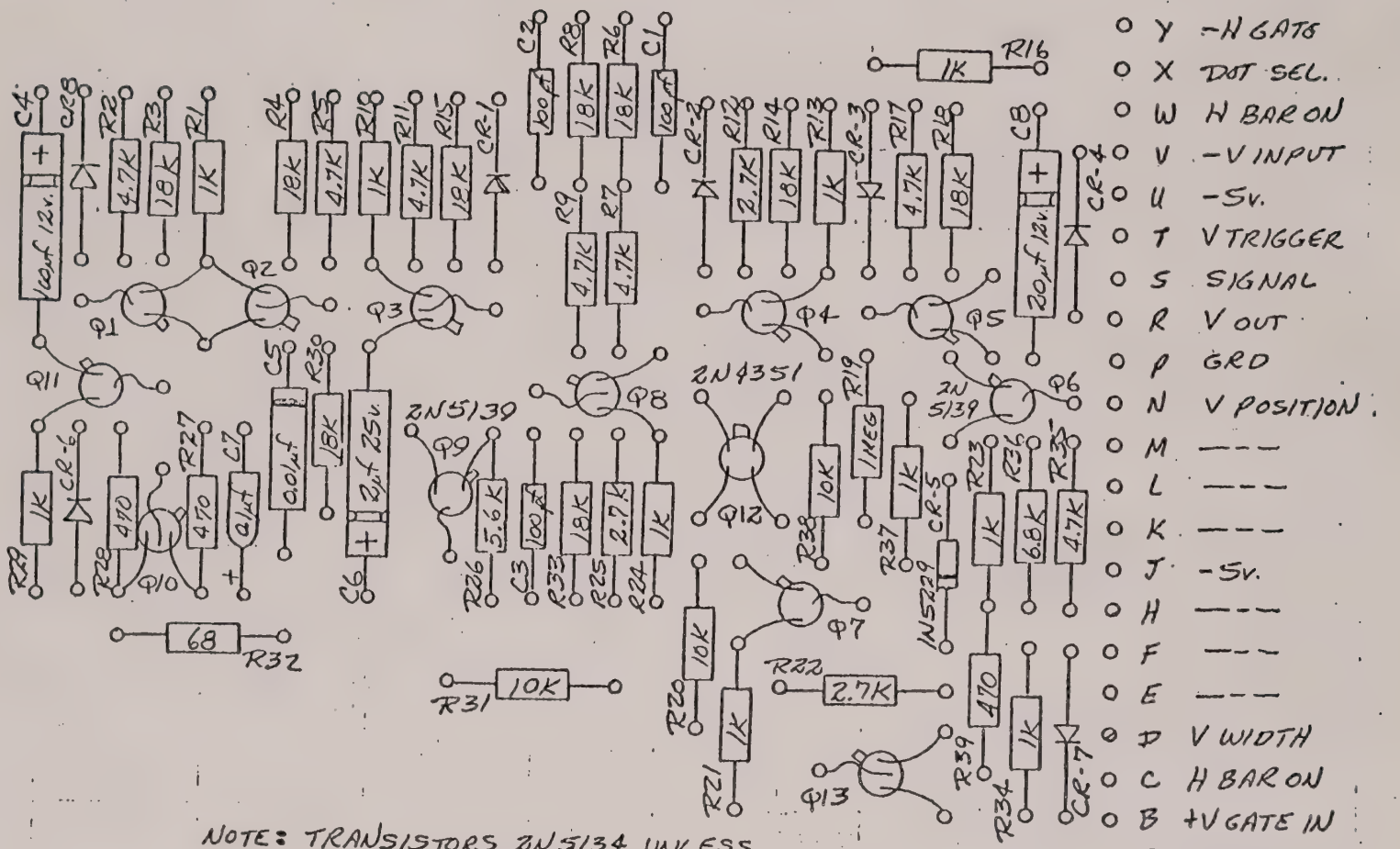

-V INPUT
CR-4
V OUT
DOT SELECT
H BAR ON
(+5v.)
-H GATE IN
V TRIGGER OUT
SIGNAL OUT
V TRIGGER IN
CONTROL
CR-3
CR-1
CR-2
-5v.
V WIDTH CONTROL
H BAR ON (+5v.)
+V GATE IN
CR-7
V POSITION ADJ
CR-5
CR-6
NOTE: VALUE OF R26 AS FOLLOWS:
L-1039 = 5.6K
L-1202 = 3.3K
NOTE: 1. ALL RESISTORS 1/2w ±10% TOL.
2. ALL DIODES IN 4154
POWER CONNECTIONS: -5v. (U) (J) GRD (P)
REF - DWG. L-1039, L-1202
VISUAL INFORMATION INSTITUTE, INC.
XENIA, OHIO
H BAR
DRN
APVD
DATE 1/10/68
DATE 1/10/68
REV. 10/13/13
S-0171

H BAR BOARD
10/13/73

Dwg. No. L-1039
REF: SCHEMATIC S-0171

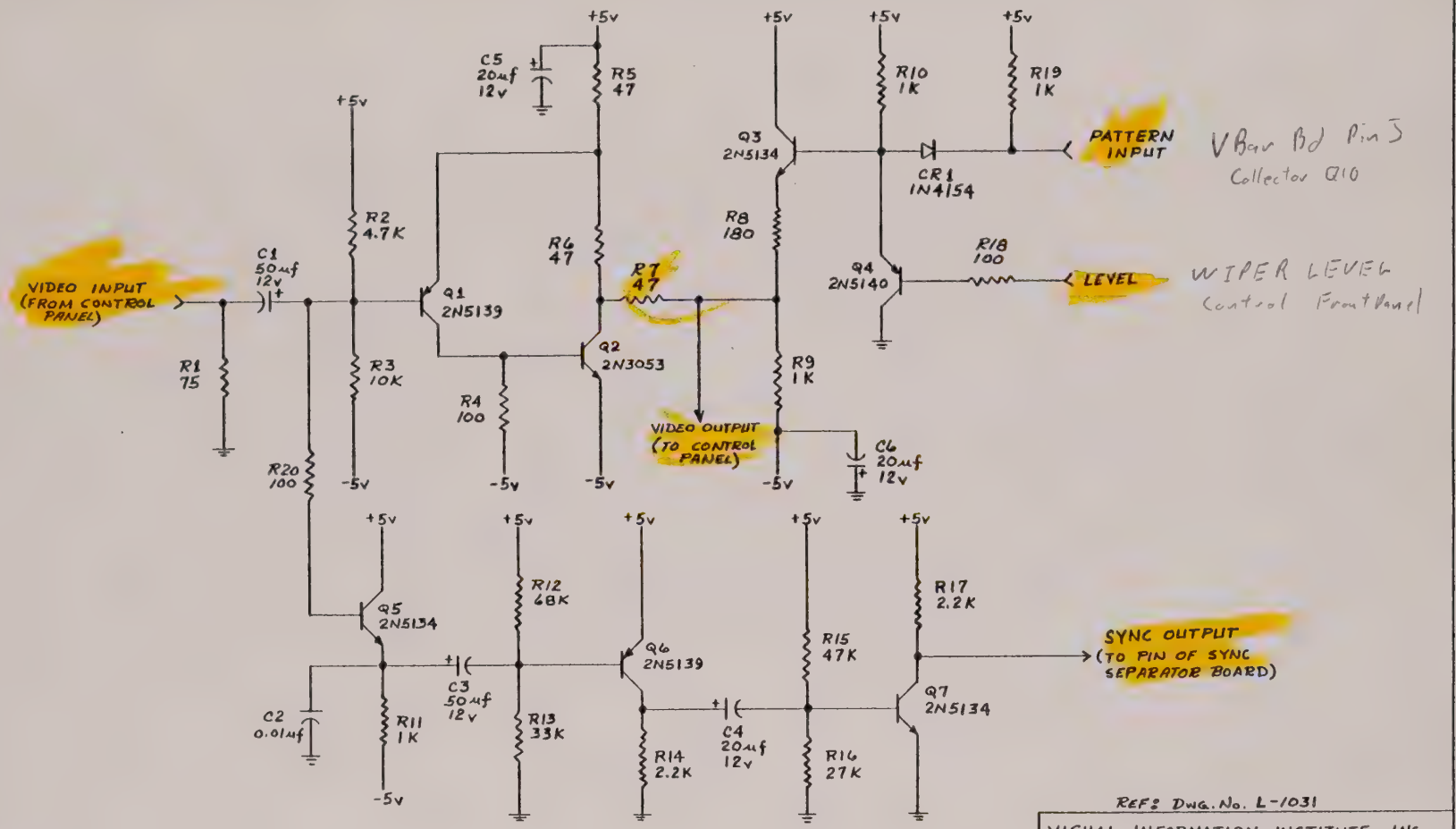
MATERIAL LIST

QTY	DESCR.
1	1N5229B
1	2N4351
2	2N5139
10	2N5134
7	1N4154
1	6.8K
1	1 MEG
10	1K
3	470
7	4.7K
9	18K
1	5.6K
3	2.7K
3	10K
1	68
1	100 μf, 12v.
1	2 μf, 25v.
1	.01 μf, 100v.
1	0.1 μf, 35v.
3	100 pf
1	20 μf, 12v.



NOTE: TRANSISTORS 2N5134 UNLESS NOTED OTHERWISE

134 - TERMINALS



NOTE:
ALL RESISTORS 1/2 W, ±10% TOL.

REF: DWG. NO. L-1031

VISUAL INFORMATION INSTITUTE, INC. XENIA, OHIO	
VIDEO OUTPUT SIGNAL SOURCE 207	
DRN L.P. BUTCHER	DATE 4/22/75
APPVD	DATE 4-29-75
REV. 3/30/70	DWG. NO. S-0113

VIDEO OUTPUT - CARD D

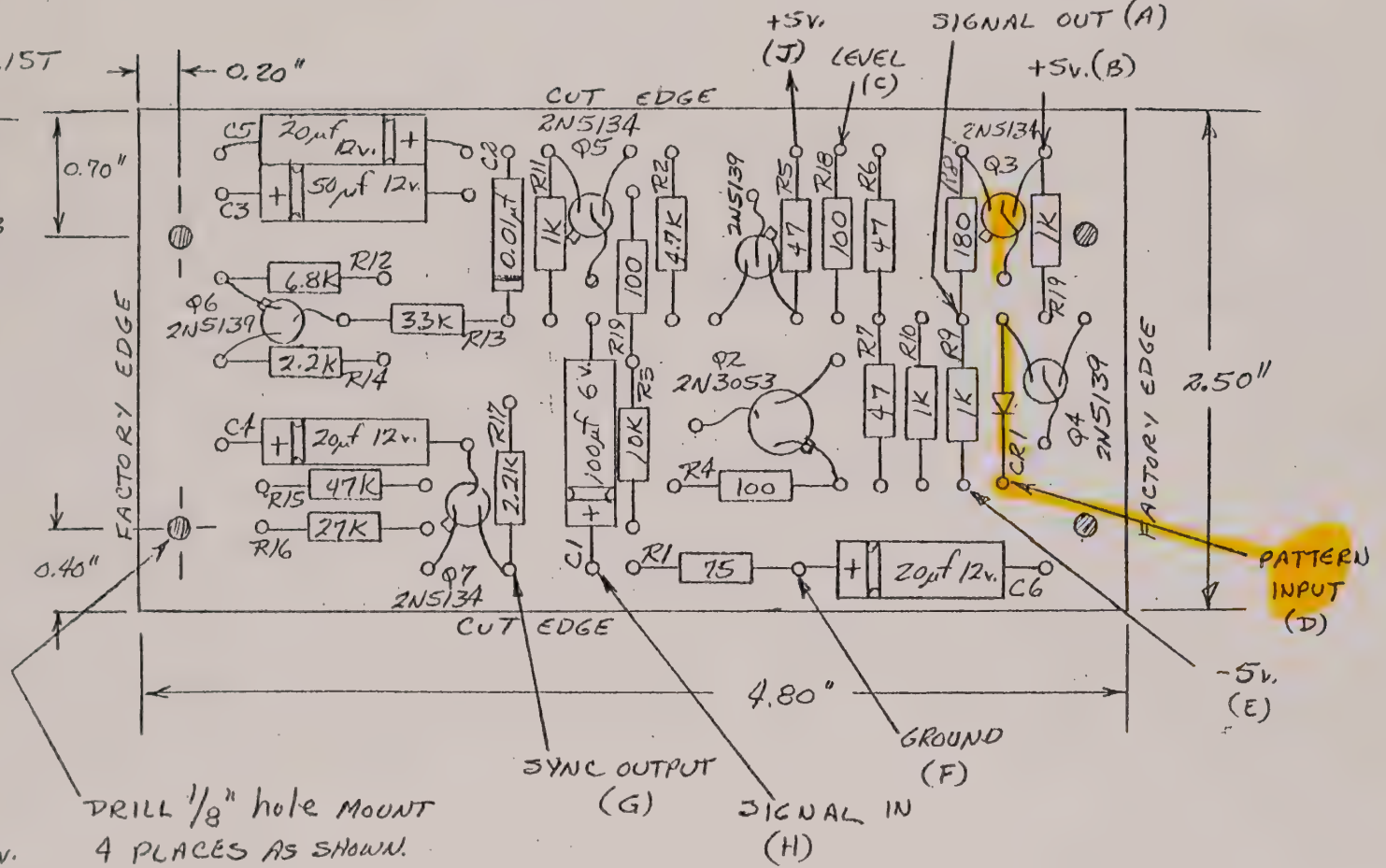
7/25/72

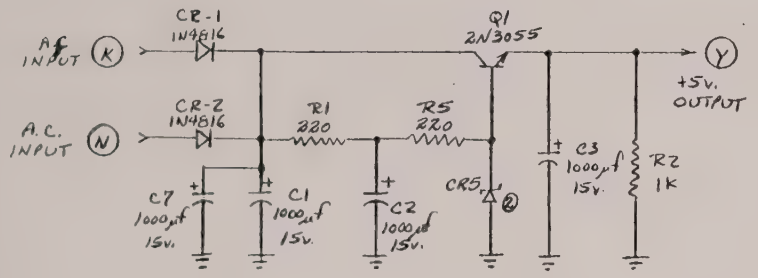
DWG. NO: L-1031

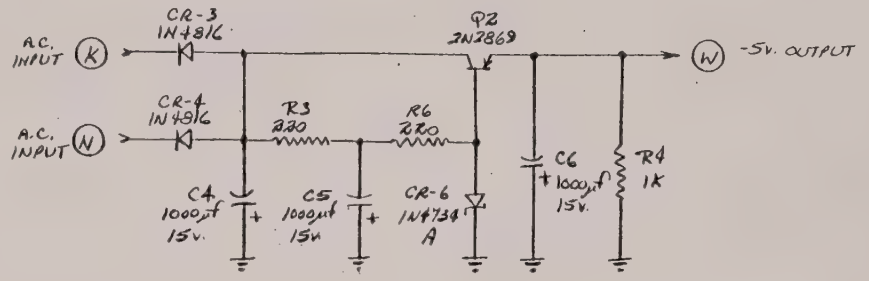
REF: SCHEMATIC S-0113

MATERIAL LIST

QTY	DESCR
3	2N5134
3	2N5139
1	2N3053
1	1N4154
4	1K
3	47
3	100
1	180
1	10K
1	27K
1	47K
2	3.2K
1	6.8K
1	33K
1	4.7K
1	75
1	0.01 µf 100v.
1	50 µf 12v.
3	20 µf 12v.
1	100 µf 6v.
1	CIRCUIT BOARD, AS SHOWN, MAKE FROM VECTOR 85G24 WE STOCK.
57	TERMINALS



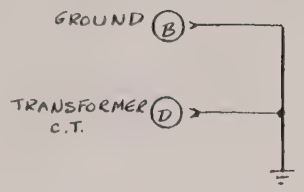




NOTE: ① ALL RESISTORS 1/2w. 10% TOL.

② CR5 SELECTED FOR DESIRED OUTPUT VOLTAGE

DWG NO.	VOLTAGE	TYPE
L-1032	+5v.	IN4735A
L-1177	+7v.	IN4737A



REF: Dwg. L-1032, L-1177

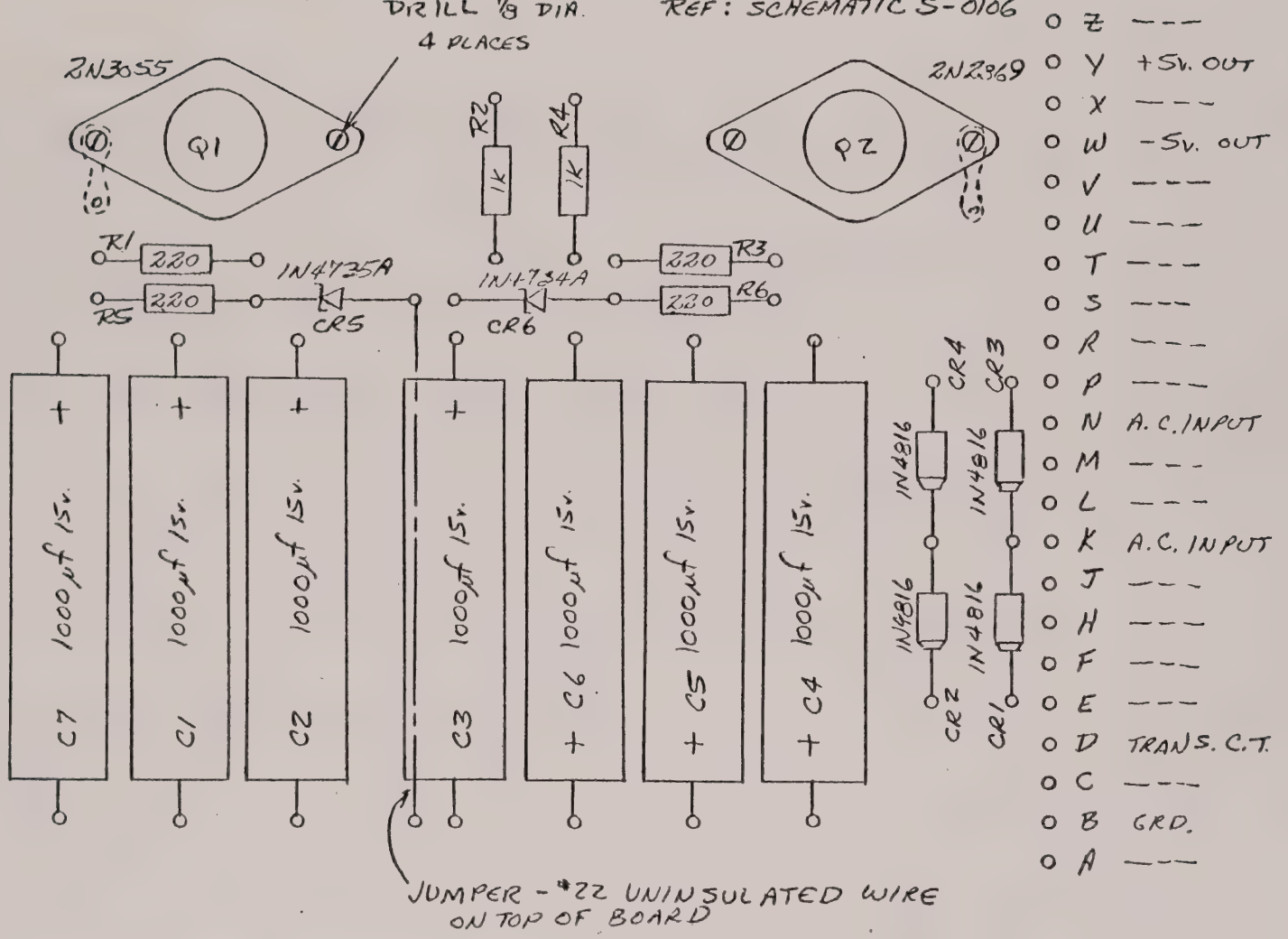
VISUAL INFORMATION INSTITUTE, INC. XENIA, OHIO	
POWER CIRCUIT BOARD (+5v. AND -5v.)	
DWN JH	DATE 6-24-67
APPVD JH	DATE 6-24-67
REV 5/12/69	S-0106

POWER BOARD
6/21/73

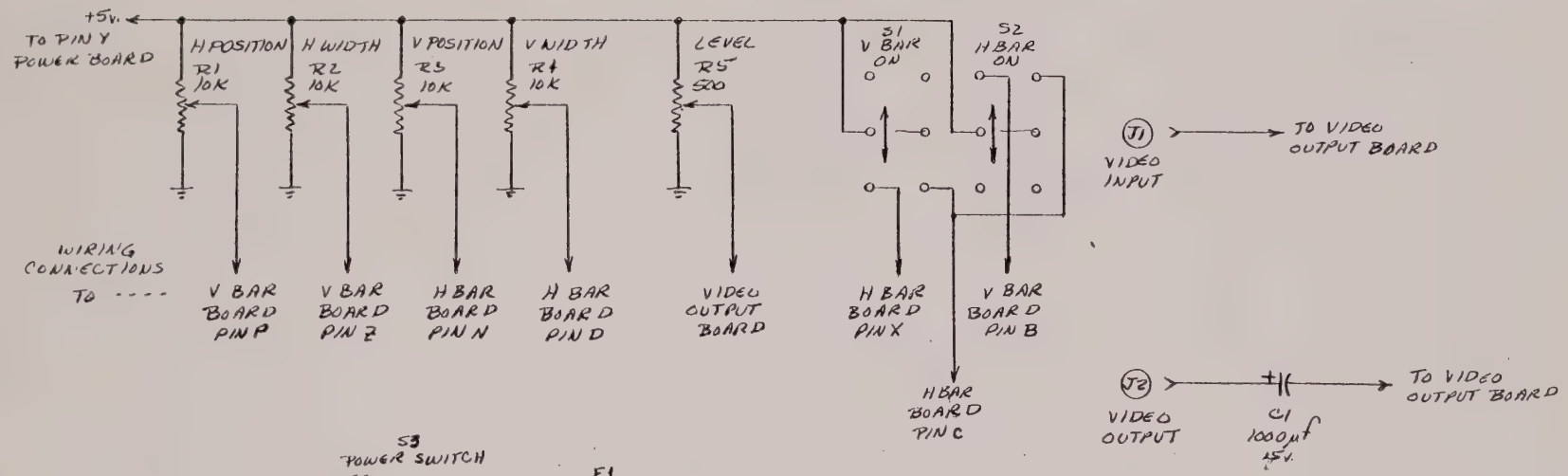
DWG. NO. L-1032
REF: SCHEMATIC S-0106

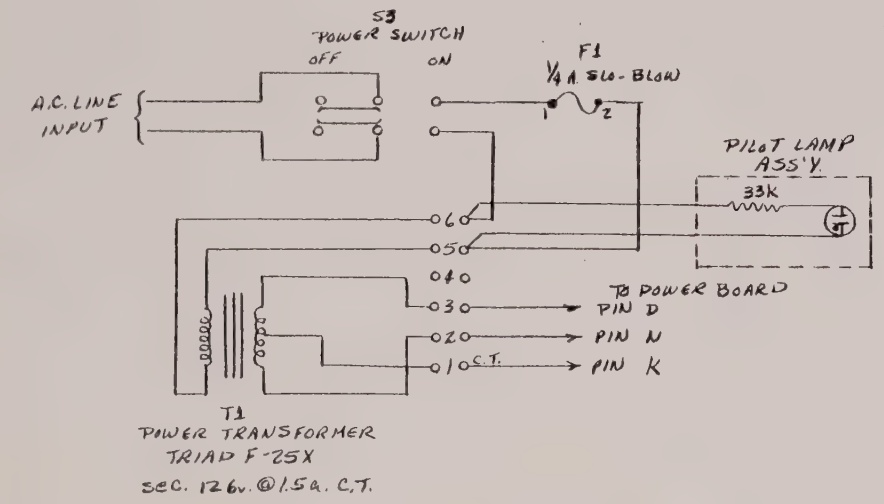
MATERIAL LIST

QTY	DESCR
1	2N3055
1	2N2869
1	IN4735A
1	IN4734A
4	IN4816
2	1K
4	220
7	1000µf 15v.
35	TERMINALS



NOTE: SEE DWG. L-1032B FOR POWER TRANSISTOR DRILL PLAN.





REF DWG. NO. A-1053

VISUAL INFORMATION INSTITUTE, INC.
XENIA, OHIO

CONTROL PANEL & CHASSIS WIRING
SIGNAL SOURCE 207

DRN	DATE 4/16/68
APPVD	DATE 4/16/68
REV 1/25/78	S-0114

ACCESSORIES AND SERVICE

The Signal Source equipment is designed for long, reliable service under adverse operating environments. It should require a minimum of maintenance or service if properly applied.

Visual Information Institute, Inc. stands ready to assist in advising as to proper application of its products, to aid in servicing instruments, and to help in CCTV system layout and operation for maximum of utility in the application of television in all areas.

A number of accessories are available for extended operation of Signal Source equipment, including special housings, cables, etc., especially designed to suit unusual requirements. Special configurations of Signal Source generators are available for integration into existing or contemplated systems, such as units without cases, special accessory functions brought to the front panel, etc.

If your equipment should malfunction or develop operating difficulty, the factory supports a liberal service and overhaul program for a fixed labor fee plus cost of parts, transportation, and insurance. Prompt attention to your equipment is pledged; do not hesitate to contact the factory in these instances.

WARRANTY

Signal Source equipment is guaranteed to be free of defects in material and workmanship for a period of one year from date of shipment, when operated in accordance with the instructions and specifications provided. Such warrant is made in lieu of any other guarantee or warranty, expressed or implied, and is offered only to the original purchaser. If such defects are confirmed through our inspection, the product will be repaired or replaced, at our option, without charge to the purchaser for parts or for labor. This warranty does not cover damages which occur in shipment or due to misuse or abuse of the apparatus, and is not applied to cables or decorative, stained, or painted finishes.

Those requesting adjustment through the terms of this warranty are instructed to contact the factory for authorization to return the equipment before shipment. Items for which authorization is issued are to be sent prepaid.

Signal Source equipment is designed and constructed using the most effective and safest industrial practice known, and in accordance with printed and accepted practices for fabrication of industrial electronic equipment. Inasmuch as Visual Information Institute, Inc. has no control over the manner in which the instrument is used, or over systems into which the equipment will be interconnected, the corporation cannot and does not assume any liability for circumstances or damages arising from use of this equipment.